Journal of Dentistry and Oral Biology

പ്പ

Silica-Fused Zirconia Micro Beads for Retention between Veneering Resin Composite and Zirconia

Yohsuke Taira1*, Junichi Fukur² and Takashi Sawase1

¹Department of Applied Prosthodontics, Graduate School of Biomedical Sciences, Nagasaki University, Japan ²Department of Medical Technology, Nagasaki University Hospital, Japan

Clinical Image

When prostheses are fabricated with Yttria-Stabilized Zirconia (Y-TZP), strong bonding between the resin and Y-TZP framework is needed. Therefore, we report a method to improve mechanical retention by modifying a technique to coat Y-TZP with silica-based ceramics [1]. The surface of Y-TZP beads (150 μ m to 212 μ m diameter; TZ-B180, Tosoh; (Figure 1)) were coated with a silica-based ceramic spray (Crystall/Glaze Spray, Ivoclar Vivadent, Schaan, Liechtenstein). As the substrate material, disk-shaped Y-TZP specimens (Tosoh, Tokyo, Japan) were air-abraded with alumina (Hi Aluminas, Shofu Inc. Kyoto, Japan). A silica-based ceramic agent (Initial IQ Lustre Paste, GC, Tokyo, Japan) was primed on the Y-TZP specimen, then the silica coated Y-TZP beads were dropped on it, and it was fired at 940°C under vacuum. Figure 2 illustrates the specimen fused with Y-TZP micro beads. Such retention methods can be used in conjunction with chemical bonding systems to veneer a zirconia framework with resin composite materials.



Figure 1: The Y-TZP micro beads used. Its surface was sputter-coated with gold (Ion Coater IB-3, Eiko Engineering, Hitachinaka, Japan), and then observed using a scanning electron microscope (JCM-6000Plus, JEOL, Tokyo, Japan) at a magnification of 240X.



Figure 2: The Y-TZP micro beads (B) bonded to Y-TZP plate using silica-based intermediate ceramic agents (S). The bottom of the beads is fused to the silica-based ceramic layer (original magnification 240X).

References

 Fushiki R, Komine F, Honda J, Kamio S, Blatz MB, Matsumura H. Long-term bond strength between layering indirect composite material and zirconia coated with silicabased ceramics. J Adhes Dent. 2015;17(3):273-81.

OPEN ACCESS

*Correspondence:

Yohsuke Taira, Department of Applied Prosthodontics, Graduate School of Biomedical Sciences, Nagasaki University, 1-7-1, Sakamoto, Nagasaki 852-8588, Japan, Tel: +81-95-819-7688; Fax: +81-95-819-7689; E-mail: yohsuke @nagasaki-u.ac.jp Received Date: 23 Aug 2017 Accepted Date: 16 Sep 2017 Published Date: 23 Sep 2017

Citation:

Taira Y, Fukui J, Sawase T. Silica-Fused Zirconia Micro Beads for Retention between Veneering Resin Composite and Zirconia. J Dent Oral Biol. 2017; 2(16): 1099.

ISSN: 2475-5680

Copyright © 2017 Yohsuke Taira Ramugade. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.